

ON THE NATURAL HISTORY AND IDENTIFICATION OF SPIDERS¹

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The purpose of this paper is to answer two questions: First, "how can I determine the name of this spider?", and second, "where can I learn about the ways of spiders?"

These two questions are sent in to various agencies connected with the University of Florida a dozen times a year. The answers to them should also be of interest to high school biology teachers and college teachers of ecology, invertebrate zoology, and many field courses.

Until quite recently the matter of identifying a spider to species has posed quite a problem to anyone not a specialist in the group. Prior to 1912 and the publication of Comstock's "Spider Book" there was no general work on American spiders that treated the spiders in such a way as to be very useful in classification. Most of the taxonomic information available was scattered in numerous articles in a large number of scientific journals. Comstock really did a magnificent job in producing an introductory manual to the study of Arachnology. His book starts out with a review of the groups of animals most closely related to spiders — the scorpions, the pseudoscorpions, the whip-scorpions, granddaddy-long-legs and the like. Then follow chapters on the external anatomy, internal anatomy, and life of spiders — necessary prerequisites to the successful handling of descriptions and taxonomic keys during identification procedures. The remaining 500 pages of the book are devoted to a survey of the spider Order Araneae in which all of the American families are described and many of the genera and species. Unfortunately, space did not permit the inclusion of information on all known species. Instead, Comstock selected representative or the more striking species and included, for these, descriptions, illustrations, interesting accounts of their habits, life histories, etc. This book was out of print for a number of years but was revised somewhat by W. J. Gertsch in 1940 and published by Doubleday, Doran & Company, Inc., New York. For a general introduction to American spiders this is probably the best selection for a beginning student. The book is well illustrated.

¹ A contribution from the Department of Biology, University of Florida.

As has already been indicated, Comstock is not satisfactory, because of its incomplete coverage, when it comes to the identification of a spider to species, and, indeed, there is no satisfactory book available for the whole United States. However, there is a very fine manual on the "Spiders of Connecticut" which, although it covers only the spiders of Connecticut and neighboring states, does contain descriptions, keys and illustrations of many of the spiders in any of the eastern states. It is very useful, for example, in the determinations of Florida species. Even if a particular species is not included in the manual it is usually possible to identify it to genus. This book contains excellent keys to the families, to the genera, and to the species, and is abundantly provided with illustrations of the structural features upon which the identifications to species are made. The "Spiders of Connecticut" is the work of Dr. B. J. Kaston of the Teachers College of Connecticut in New Britain, and was published in 1948 as Bulletin No. 70 of the State Geological and Natural History Survey. It may be purchased from the State Library in Hartford.

A great many spiders, then, may be identified with the aid of the books by Comstock and Kaston. As a last resort specimens may be sent to the American Museum of Natural History in New York for identification. Dr. W. J. Gertsch, Curator of Arachnology of that institution, has given me permission to include a statement to the effect that he will be glad to receive specimens in limited numbers for identification. In return for the time involved important specimens are retained by the Museum and only duplicates returned. Retained specimens are properly acknowledged. I may say from personal experience that specimens sent to Dr. Gertsch are handled promptly.

Most people appear to grow up with an antipathy for spiders that ranges all the way from a slight feeling of distaste to paralyzing fear and revulsion. It is one of those traditions that are handed down from generation to generation without having any foundation in fact. Very few spiders are poisonous to man anywhere on the globe and in the United States only the black widows are known to produce any serious effects, and these are seldom, if ever fatal.

Mention of one other widespread misconception seems appropriate. Far from being the ugly repulsive beast of fable, spiders as a group are quite respectable in appearance. Many are handsomely

colored. Of course it all depends upon your point of view. For those to whom the word "spider" calls to mind only a picture of the hairy, drab colored tarantula, revulsion is understandable. One has to see the rich variety of color and the perfection of the anatomical design in order to appreciate the real beauty of spiders. Unfortunately, this requires the use of a hand lens or even low power binocular microscope in all too many cases.

This widespread feeling about spiders is unfortunate because it precludes an acquaintance with a group of animals that has much to offer in the way of biological interest. Anyone who enjoys a stroll through the fields and woods would do well to strike up an acquaintance with this almost inexhaustible supply of variety in life and habits. Population densities have been calculated to range, in different regions, from 14,000 to over 2 million per acre. No counts have been made for Florida but it is certain that spiders are very numerous. As to kinds, there are probably about a thousand species in Florida, with many of these yet undescribed.

As one of the oldest of the groups of animals related to the insects, spiders have had a great length of time at their disposal in which to devise new and curious ways of making a living. Starting out with a copyright on the use of silk (which has been infringed only on rare occasions) spiders have put this material to almost every conceivable use. To mention only a few — for "ballooning", traveling long distances through the air supported by strands of silk; for snares with which to capture their prey (the variety of these is unbelievable!); for protective coverings around the eggs; as a lining of the burrow to prevent cave-ins; for a variety of kinds of doors at the entrance to burrows.

A large number of books have been written on the subject of the life and habits of spiders. Many of these are out-of-print or otherwise unavailable. Some of those still in print, unfortunately, smack of authenticity to the non-specialist, but in reality represent the worst form of nature-faking. The following list of selected titles is arranged according to their availability and desirability as sources of reliable information. The first two are recommended for purchase, the others should be looked for in larger public libraries. Comstock's Spider Book should be in this list, but has already been listed above.

American Spiders. By Willis J. Gertsch. D. Van Nostrand Company, Inc., New York. 1949.

The Life of the Spider. By J. Henri Fabre (translated by Alexander Teixeira de Mattos). Blue Ribbon Books, Inc., New York. 1912. (Note: any edition of the work of the great French naturalist would serve just as well).

The Comity of Spiders. By William S. Bristowe. Printed for the Ray Society of London. Vol. 1—1939. Vol. 2—1941.

American Spiders and their Spinningwork. By Henry C. McCook. Published by the author. Vol. I—1889. Vol. II—1890. Vol. III—1894.

The Biology of Spiders. By T. H. Savory. Sidgwick & Jackson, London. 1928.

Spider Wonders of Australia. By K. C. McKeown. Angus & Robertson Limited, Sidney. 1936.

One due to appear in the very near future is: *How to Know the Spiders.* By B. J. Kaston. The William C. Brown Co., Dubuque, Iowa.

Additional titles may be found in the bibliographies of the works listed above.